PERCEIVED STRESS MEDIATES THE EFFECT OF POSITIVE RUMINATION ON EXPLICIT AGGRESSION

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ABSTRACT

While negative rumination (NR) has been linked to explicit aggression and perceived stress, the relationships with positive rumination (PR) have yet to be explored. The current study investigated the associations between the PR subscales (dampening, self-focused PR, and emotion-focused PR), perceived stress, and explicit aggression as well as a mediational model with perceived stress as the mediator. 158 undergraduate students were administered a 15-minute online questionnaire with randomly ordered measures of positive rumination subscales (dampening, self-focused PR, and emotion-focused PR). Analyses revealed that dampening was associated with greater perceived stress and greater explicit aggression, and both self-focused PR and emotion-focused PR were associated with less perceived stress, but not with explicit aggression. When perceived stress was introduced as a mediator, the mediation between dampening, perceived stress, and aggression explicit and the mediation between self-focused PR, perceived stress, and aggression were both significant. The mediation between emotion-focused PR, perceived stress, and aggression was not significant. These results are novel and individuals can use self-focused PR as an adaptive coping style, whereas dampening is maladaptive. Future studies can be longitudinal and be replicated with a more diverse sample size.

INTRODUCTION

Negative rumination (NR) is linked with disorders such as depression and anxiety (Mor & Winquist, 2002; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008; Nolen-Hoeksema, 1991; Watkins, 2008) as well as harmful consequences such as aggression (McCullough, Bellah, Kilpatrick, & Johnson, 2001) and perceived stress (Nolen-Hoeksema, 1991; Morrison & O'Connor, 2008; Willis & Burnett, 2016; Nolen-Hoeksema et al., 2008). However, the consequences of its positive counterpart, positive rumination (PR), have yet to be explored. Both NR and PR are tendencies for repetitive thinking but differ based on the type of thoughts experienced. NR focuses on individuals' negative feelings, situations, and problems (Nolen-Hoeksema, 1991; Nolen-Hoeksema, 1987), which can result in prolonging depressive feelings (Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Davis, 1999; Nolen-Hoeksema, 1991), exacerbating depression symptoms (Just & Alloy, 1997; Morrow & Nolen-Hoeksema, 1990; Raes, Smets, Nelis, Schoofs, 2012), and poor problem solving skills (Lyubomirsky & Nolen-Hoeksema, 1995; Watkins & Moulds, 2005). Conversely, PR focuses on positive events, experiences, and feelings by diminishing positive affect or enhancing different aspects of it (Feldman, Joormann, & Johnson, 2008). This crucial difference results in some research showing that PR does enhance self-esteem (Martin & Tesser, 1996), resiliency (Eisner, Johnson, & Carver, 2009; Cohn, Fredrickson, Brown, Mikels, & Conway, 2009), and even buffer psychological distress (Werner-Seidler, Banks, Dunn, & Moulds, 2013). However, other research has linked PR to manic episodes in individuals with bipolar disorders (Gruber, Eidelman, Johnson, Smith, & Harvey, 2011; Johnson, McKenzie, & McMurrich, 2008) as well as sometimes exacerbating depressive symptoms (Joormann, Siemer, & Gotlib, 2007; Li, Starr, & Hershenberg, 2017). Because explicit aggression, both verbal and physically aggressive behaviors, is a harmful consequence of

NR, the possible connection between PR and explicit aggression should be explored. This relationship may provide insight into either a prevention strategy or something to avoid.

PR impacts individuals differently depending on whether they diminish or amplify positive affect. The first subscale of PR, dampening, involves minimizing positive affect and circumstances (e.g., "this is too good to be true") or focusing on less fortunate aspects of life (e.g., thinking about how things could go wrong) (Nelis, Luyckx, Feldman, Bastin, Raes & Bijttebier, 2016). Individuals who dampen their situation experience an increase in negative affect (Joormann et al., 2007; Li et al., 2017; Parrott, 1993). This type of thinking strategy is typically found in individuals with mood disorders and social phobias (Dunn et al., 2018). They may even have difficulty recalling positive events (Matt, Vazquez & Campbell, 1992). The second and third subscales of PR both amplify positive affect. Self-focused PR focuses on positive self-qualities and goal-driven pursuits (e.g., thinking about how proud you are of yourself), whereas emotion-focused PR focuses on positive emotional states (e.g., thinking about how you feel up to doing anything) (Feldman et al., 2008). Individuals without depression tend to utilize these enhancing subscales, both of which decrease negative affect (Joormann et al., 2007).

The connection between PR and explicit aggression has yet to be explored, but its connection can be hinted at because of negative rumination's connection to explicit aggression. McCullough and colleagues (2008) found that negatively ruminating about an interpersonal injustice leads to individuals behaving more aggressively. In addition, individuals who ruminate may engage in aggressive behaviors similar to impulsive behaviors according to the Emotional Cascade Model (Selby, Kranzler, Panza, & Fehling, 2016). The Emotional Cascade Model states that negative rumination and negative emotions aggravate each other until individuals use impulsive behaviors (e.g., fighting) as an avoidance tactic from rumination (Shelby & Joiner, 2013). Individuals who ruminate after a provocation are also more likely to act aggressively to avoid future rumination (Bushman, Bonacci, Pederson, Vasquez, & Miller, 2005; Selby, Anestis, & Joiner, 2008). Dampening is also a form of rumination that increases negative affect, similar to NR. This suggests that individuals who engage in dampening may then act out aggressively.

The General Aggression Model provides an explanation behind the reasoning for individuals who engage in dampening reacting with aggression. Individuals are first influenced by individual inputs (e.g., values, beliefs, general disposition) and situational inputs (e.g., provocations, pain, discomfort, incentives). The individual's internal state (e.g., cognition, affect, arousal) further influences their behavior. Cognitions include hostile thoughts; the more frequent individuals engage in these thoughts, the more likely they will engage in explicit aggression. In addition, factors caused by other sources, such as perceived stress, can be misinterpreted, to which individuals respond with aggression. Because NR promotes thinking about negative thoughts, which can be hostile, as well as perceived stress (Lyubomirsky et al., 2006; Morrison & O'Connor, 2008; Nolen-Hoeksema, 1991; Nolen-Hoeksema; Willis & Burnett, 2016), individuals are more likely to react aggressively (Allen, Anderson, & Bushman, 2018; Anderson & Bushman, 2002). Therefore, dampening, which also elicits negative affect by diminishing positive affect (Feldman et al., 2008) may lead to heightened perceived stress and more explicitly aggressive behaviors. Perceived stress may also mediate the association between dampening and explicit aggression because the previous model and the previous research on how perceived stress relates to explicit aggression (Frye & Karney, 2006; Gormley & Lopez, 2010; Johnson, Anderson, Liu, Zheng, Ratcliffe, 2013; Lasko, Gurvits, Kuhne, Orr, & Pitman, 1994; Yoder, Dillard, & Stehlik, 2018.

Because self-focused PR and emotion-focused PR increase positive affect (Feldman et al., 2008; Raes, Daems, Feldman, Johnson, & Van Gucht, 2009), both may lead to less explicit aggression and less perceived stress. Unlike dampening, self-focused PR and emotion-focused PR are associated with increased life satisfaction (Cohn et al., 2009; Livingstone and Srivastava, 2012; Yang & Gao, 2014), greater self-worth, self-acceptance, and greater self-esteem (Cheng & Furnham, 2003; Feldman et al., 2008; Harter, 1993; Moksnes & Espnes, 2013). According to the General Aggression model, self-focused PR and emotion-focused PR may decrease the likelihood of reacting aggressively because individuals think about the positive, which shifts attention away from negative, hostile thoughts. As stated previously, factors can be misinterpreted as provocations, which can lead to aggressive behaviors (Anderson & Bushman, 2002). While negative affect contributes to the misinterpretation of factors originating from outside

sources, such as perceived stress, as threats, positive affect may lead to less misinterpretation and, thus, not react aggressively.

The strength model of self-control (Hagger, Wood, Stiff, & Chatzisarantis, 2009) may also allude to the connection between PR and perceived stress. According to the strength model of self-control, individuals have a limited capacity to regulate themselves and, once depleted, have more difficulty managing their behavior, which can result in impulsive and potentially aggressive behaviors. Perceived stress can deplete this capacity, which is supported by its association with impulsivity (Hagger et al., 2009; Oaten & Cheng, 2005). While previous research has not yet investigated how dampening is associated with perceived stress, cognitive processes that involve suppressing thoughts and feelings, similar to dampening, are also able to drain the capacity for self-regulation and more difficulties managing individuals' behavior (Hagger et al., 2009; Oaten & Cheng, 2005). Additionally, NR, which has similar associations as dampening such as poor problem solving skills and worsened depressive symptoms (Hagger et al., 2009; Nolen-Hoeksema, 1991; Nolen-Hoeksema, et al., 2008), is associated with increased perceived stress (Morrow & O'Connor, 2008; Nolen-Hoeksema, 1991; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008; Willis & Burnett, 2016). Therefore, dampening may be associated with perceived stress, both of which may lead individuals to react with impulsive and potentially aggressive behaviors.

Unlike dampening, self-focused PR and emotion-focused are associated with more positive affect, which sustains and expands individuals' resources for regulating themselves (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Hagger et al., 2009). Individuals are then able to overcome impulsive behaviors (Baumeister et al., 1998) as well as develop resiliency or a resistance to stress (Ong, Bergeman, Bisconti, Wallace, 2006; Turgade & Fredrickson, 2004). Individuals who develop more resiliency actively engage in adaptive coping strategies to ward off stress (Cohn et al., 2009; Eisner et al., 2009; Fredrickson, Tugade, Waugh, & Larkin, 2003; Turgade & Fredrickson, 2004). This suggests that PR may play a role in the amount of perceived stress individuals feel and the kinds of actions they take after feeling stressed whether that be exhibiting aggressive tendencies if dampening or not if engaging in self-focused PR or emotion-focused PR.

While the association between perceived stress and explicit aggression was alluded to in the general aggression model and the strength model of self-control, previous research supports supports this association (Frye & Karney, 2006; Gormley & Lopez, 2010; Johnson et al., 2013; Lasko et al., 1994; Yoder et al., 2018). One study showed that veterans suffering from PTSD experienced heightened aggression than the control group, regardless of combat exposure (Lasko et al., 1994). Multiple study indicates that stress is a predictor of future aggressive behaviors, in college couples (Gormley & Lopez, 2010), newlyweds (Frye & Karney, 2006), and families (Yoder et al., 2018). The previous studies suggest that all these individuals are more likely to handle their stress by reacting with aggression.

Few research studies have been dedicated to expanding the positive rumination literature. Understanding PR is crucial to determine whether it can diminish the negative consequences of both perceived stress and explicit aggression or worsen them. In the current study, I explored the associations between the responses to positive affect subscales (dampening, emotion-focused PR, and self-focused PR), perceived stress, and explicit aggression. First, I hypothesized that dampening will be positively correlated with perceived stress and explicit aggression. Second, emotion-focused PR and self-focused PR will be negatively correlated with perceived stress and explicit aggression. Third, perceived stress will be positively correlated with explicit aggression. Fourth, perceived stress will mediate the association between dampening and more explicit aggression. Lastly, perceived stress will mediate the association between both emotion-focused PR and self-focused PR and less explicit aggression.

METHODS

Participants

This study utilized 158 undergraduate students (Mage = 19.41, SD = 1.32, range = 18 - 24) who were enrolled as full-time students at The College of New Jersey and were smartphone owners. Participants of the sample identified as female (80.4%), male (17.7%), and non-binary (1.3%). The ethnic breakdown was 72.2 % White/Caucasian, 3.2 % Black/African American, 6.3 % Hispanic or Latino/a, 6.3 % Asian/Asian

American/Pacific Islander, 7.6 % South Asian/Indian, 0.6 % Arab/Arab American, and 3.8 % were multi-ethnic.

Procedure

Participants first signed up for an initial individual assessment meeting that lasted approximately 30 minutes. They were recruited through the psychology participant pool (PIPER system) and received course credit for participation. Informed consent was obtained from all participants at the beginning of the study. The measures used were administered to the participants in a random order through a 15-minute online questionnaire. All initial sessions took place in the TCNJ Social Sciences building. This initial meeting was part of a larger EMA study that complied with APA Ethical Principles and the standards of The College of New Jersey's Institutional Review Board.

Measures

Positive Rumination. The 17-item Responses to Positive Affect scale (RPA; Feldman et al., 2008) assesses the tendency to respond to positive affective states with recurrent thoughts and mental strategies. PR is separated into three subscales depending on the mental strategy used: dampening, self-focused PR, and emotion-focused PR. Dampening ($\alpha = 0.84$) involves reducing the intensity and duration of positive mood states (e.g., "remind yourself these feelings won't last"). Self-focused PR ($\alpha = 0.80$) uses thoughts about one's self, situation, and achievements to enhance positive mood states (e.g., "think about how proud you are of yourself"). Emotion-focused PR ($\alpha = 0.77$) uses thoughts about one's emotions and feelings to enhance positive mood states (e.g., "think about how happy you feel"). Individuals were asked to rate whether they never, sometimes, often, or always think or do each item when they feel happy, enthused, or excited using a 5-point Likert scale. Averages of each subscale were calculated and higher values indicate stronger dampening, self-focused PR, and emotion-focused PR. This measure demonstrated good construct validity as evidenced by correlations with greater anxiety and depressive symptoms with dampening (Eisner et al., 2009; Werner-Seidler et al., 2013); Yang et al., 2018), and greater life satisfaction with both self-focused PR and emotion-focused PR (Nelis et al., 2016).

Explicit Aggression. The adapted 17-item Explicit Aggression Scale (EAS; Borders, Barnwell, & Earleywine, 2007) assesses different types of aggressive behavior (e.g., "I have threatened to hurt someone") or hostility (e.g., "I have felt really bitter about things") within the past 6 months. Participants were asked to report the amount of times (e.g., 1, 2, 3–5, 6–10, 11–19, 20+) they engaged in the previous behaviors. Higher summed scores indicate greater aggression. This measure correlated with greater angry rumination (Fresnics & Borders, 2017), which demonstrated good construct validity and internal consistency ($\alpha = 0.83$).

Perceived Stress. The 10-item Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) measures the degree to which participants have felt stressed in the past month. For each question, participants were instructed to think about how often they felt or thought a certain way in the last month (e.g., "felt difficulties were piling up so high that you could not overcome them"). Responses ranged from 0 (Never) to 4 (Often). Some items were reverse scored and higher scores indicated more perceived stress. This measure demonstrated good internal consistency ($\alpha = 0.90$), and adequate validity as evidenced by correlations with poorer mental health (Valikhani, Ahmadnia, Karimi, & Mills, 2019).

RESULTS

Descriptive statistics

The variables studied were analyzed for deviations from normality. Dampening, self-focused PR, emotion-focused PR, and perceived stress were normally distributed (skewness values = .11, -.18, -.46, -.001 respectively). Scores for explicit aggression were positively skewed (skewness value = .91). A square-root transformation was performed on explicit aggression to become normally distributed

(skewness value = .21). Descriptive statistics and correlations for all study variables are presented in Table 1.

Table 1

Correlations and descriptive statistics for study variables.

	1	2	3	4	5
1. Dampening	--				
2. Self-focused PR	-.33**	--			
3. Emotion-focused PR	-.29**	.67**	--		
4. Explicit Aggression	.38**	-.15	-.04	--	
5. Perceived Stress	.56**	-.36**	-.19*	.49**	--
Mean	2.26	2.59	2.88	1.53	3.10
SD	0.70	0.71	0.64	0.70	0.70
Range	(1.00 - 3.75)	(1.00 - 4.00)	(1.00 - 4.00)	(0.00 - 3.16)	(1.50 - 4.70)

* $p < .05$
** $p < .01$

Dampening was associated with less self-focused PR, less emotion-focused PR, more explicit aggression, and, similar to previous research, with more perceived stress. Self-focused PR was associated with more emotion-focused PR, less perceived stress, but not with explicit aggression. Like self-focused PR, emotion-focused PR was associated with less perceived stress and not explicit aggression. Perceived stress was associated with more explicit aggression.

Mediation analysis

Using regression analyses, I investigated whether perceived stress mediates the associations between the positive rumination subscales (dampening, self-focused PR, and emotion-focused PR) and explicit aggression (see Fig. 1).

Mediational Model

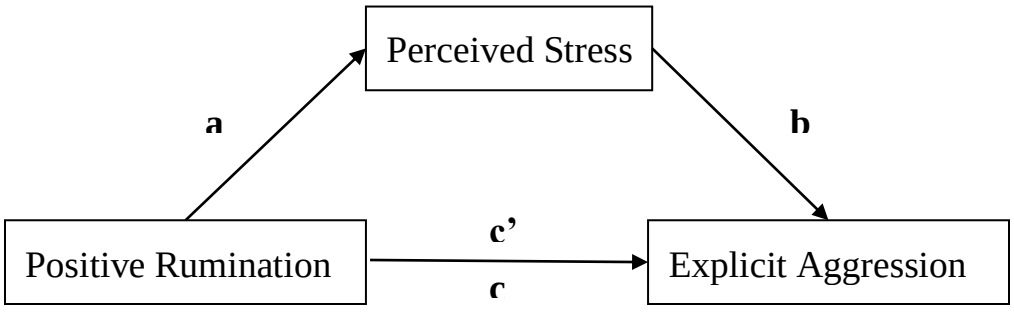

Figure 1. Mediational pathways. **a)** Total effect model depicting path c, in which positive rumination (PR) predicts explicit aggression. **b)** Mediational model with perceived stress mediating the association

between PR and explicit aggression. Path a depicts the effect of PR on perceived stress. Path b depicts the effect of perceived stress on explicit aggression. Path c' depicts the effect of positive rumination on explicit aggression after controlling for perceived stress.

The significance of mediation can be examined by calculating the indirect effect, which is the product of the coefficients for the (a) independent variable to the mediator and the (b) mediator to the dependent variable after controlling for the independent variable (Preacher & Hayes, 2008). The significance of the indirect effect was determined by using bootstrapping methodology, SPSS macro PROCESS, to obtain the bias-corrected confidence interval (Preacher & Hayes, 2008). The indirect effect confidence interval cannot not be 0 to show significant mediation.

First, I examined whether perceived stress mediates the association between dampening and explicit aggression. Dampening was associated with more explicit aggression, $\beta = .38$, $t = 4.64$, $p < .001$. Dampening significantly predicted perceived stress, $\beta = 5.57$, $t = 7.77$, $p < .001$. Once perceived stress was included in the model as a mediator, perceived stress significantly predicted explicit aggression, $\beta = .40$, $t = 4.45$, $p < .001$. Additionally, the coefficient between dampening and explicit aggression decreased in size, $\beta = .15$, $t = 4.64$, $p = .107$. The indirect effect and its bias-corrected confidence interval were then calculated, IE = .23, 95% CI = [.12 to .36]. The indirect effect was meaningfully different from zero, suggesting that perceived stress significantly mediated the association between dampening and explicit aggression.

Next, I examined whether perceived stress mediates the association between self-focused PR and explicit aggression. As predicted, self-focused PR was marginally associated with less explicit aggression, $\beta = -.17$, $t = -2.0$, $p = .052$. Self-focused PR significantly predicted less perceived stress, $\beta = -.41$, $t = -4.94$, $p < .001$. Perceived stress was added as a mediator variable. Perceived stress significantly predicted more explicit aggression, $\beta = .49$, $t = 6.02$, $p < .001$. The coefficient between self-focused PR and explicit aggression decreased in size, $\beta = .03$, $t = .34$, $p = .736$. After, the indirect effect and its bias-corrected confidence interval were calculated, IE = -.20, 95% CI = [-.35 to -.09]. The indirect effect was meaningfully different from zero, suggesting that perceived stress significantly mediated the association between self-focused PR and explicit aggression.

Lastly, I examined whether perceived stress mediates the association between emotion-focused PR and explicit aggression. Emotion-focused PR was not associated with explicit aggression, $\beta = -.054$, $t = -.56$, $p = .575$. However, emotion-focused PR significantly predicted less perceived stress, $\beta = -.19$, $t = -2.01$, $p = .046$. When perceived stress was added as a mediator variable, it significantly predicted more explicit aggression, $\beta = .49$, $t = 6.02$, $p < .001$. The coefficient between emotion-focused PR and explicit aggression was also not significant, $\beta = .04$, $t = .467$, $p = .641$. After, the indirect effect and its bias-corrected confidence interval were calculated, IE = -.09, 95% CI = [-.21 to .002]. The indirect effect was not meaningfully different from zero, suggesting that perceived stress did not mediate the association between self-focused PR and explicit aggression.

DISCUSSION

The current study explored the gaps in the PR literature and is the first to examine PR's association with perceived stress and explicit aggression. Through administering measures on the PR subscales (dampening, self-focused PR, emotion-focused PR), perceived stress, and explicit aggression, this study utilized 158 participants from a public liberal arts college to determine how perceived stress mediated the association between PR and explicit aggression. As supported by previous research (Frye & Karney, 2006; Gormley & Lopez, 2010; Johnson et al., 2013; Lasko et al., 1994; Yoder et al., 2018), perceived stress was correlated with greater explicit aggression.

Dampening was associated with greater perceived stress and, when perceived stress was added as a mediator, perceived stress mediated the association between dampening and explicit aggression. This supported the hypothesis that dampening led to greater perceived stress, which led to greater explicit aggression. The association between PR and self-esteem may provide an explanation for why individuals dampen positive affect if dampening exacerbates perceived stress. Unlike self-focused PR or emotion-focused PR, dampening is associated with lower self-esteem, which can be defined by how

individuals value themselves (Wood, Heimpel, & Michela, 2003). Individuals with low self-esteem may feel they do not deserve to feel positive so they engage in dampening, which leads to more negative affect (Joormann et al., 2007; Li et al., 2017; Parrott, 1993). Multiple studies have shown that those with low self-esteem experience higher levels of stress (Abel 1996; Backer-Fulghum, Patock, Peckham, King, Roufa, Hagen, 2012; Parrott, 1993). This suggests that negative feelings can lead to more stress and result in more aggressive behaviors.

Self-focused PR correlated with perceived stress, as hypothesized, but did not correlate with explicit aggression. However, perceived stress did mediate the effect of self-focused PR on explicit aggression. This finding indicated that individuals who engage in self-focused PR experienced less perceived stress and, in turn, less explicit aggression. Previous research has shown other positive benefits of self-focused PR; cultivating positive affect toward the self-increased self-esteem, self-worth, and self-acceptance (Cheng & Furnham, 2003; Harter, 1993). Individuals who engaged in self-focused PR displayed more adaptive coping strategies and better psychological wellbeing (Gentzler, Morey, Palmer & Yi, 2013). This supported the current study finding that those who engaged in self-focused PR experienced less perceived stress and were able to adaptively cope with their perceived stress. It is important to also note that because self-focused PR had a marginally significant effect on explicit aggression, the mediational effect can be explained by the significant indirect effect. The a-path (self-focused PR on perceived stress) was significant, which suggests that when perceived stress was introduced as the mediator, the effect was strong enough to have an indirect effect on explicit aggression.

Emotion-focused PR was correlated with less perceived stress and, like self-focused PR, was not correlated with explicit aggression. Contrary to expectations, perceived stress did not significantly mediate the association between emotion-focused PR and explicit aggression. Emotion-focused PR did correlate with less perceived stress, but was not as strong as the correlation between self-focused PR and perceived stress. The a-path (emotion-focused PR on perceived stress) was significant, but may not have been strong enough to contribute to an indirect effect, which resulted in an insignificant mediational model. Another possible contributor to the insignificant mediational model may be due to the instability and fleeting nature of emotions. Emotions tend to be short lived (Lang, 1995) and are impacted by emotional response tendencies (Gross, 1998), whereas the qualities of the self and individuals' abilities are stable. Self-esteem tends not to vary throughout their lives, excluding brief periods during adolescence and old age (Orth, Erol, & Luciano, 2018; Orth & Robins, 2014). This distinction suggests that the stability of what individuals ruminate about influenced the significance of the association.

Overall, the findings for the current study indicated that dampening, like NR, led to negative consequences such as increased perceived stress and aggressive behaviors. Self-focused PR has beneficial effects in that it diminished the effects of perceived stress and explicit aggression in a mediational model. Emotion-focused PR did not significantly relate to explicit aggression when perceived stress was the mediator. While most research supports these findings (Feldman et al., 2008), it is important to note that others show mixed results, particularly in individuals with depressive or bipolar disorders. Individuals with depressive disorders tend to dampen their positive affect due to incongruences between the positive affect and negative self-image and worldview (Li et al., 2017). When these individuals engage in emotion-focused PR and self-focused PR, they experience worsened moods (Joormann et al., 2007). Joormann and colleagues (2007) proposed that individuals who ruminate positively on either themselves or their emotions may compare that to negative view of the self and feelings, which has an effect akin to dampening. Those with mania or hypomania tend to experience negative effects when ruminating positively on emotions and themselves. When engaging in both self-focused PR and emotion-focused PR, individuals with mania or hypomania experienced greater manic symptoms, frequency, and vulnerability (Feldman et al., 2008; Gruber et al., 2011). The differing results of these studies and the current one may occur because the repetitive nature of rumination, positive or negative, may be problematic for individuals with bipolar and depressive disorders. If individuals with bipolar and depressive disorders start to positively ruminate, the positive thinking may become negative, thus cancelling out the beneficial effects of enhancing positive affect. Individuals with no history of either disorder may not experience this shift from positive to negative, and, therefore, still experience similar effects of PR as seen in the current study (Joormann et al., 2007).

Because of the varying effects of PR for individuals with bipolar disorder and depression, a future study should investigate whether these effects can influence the mediational model with explicit aggression and perceived stress as the mediator. If individuals with mood disorders experience worsened effects of self-focused and emotion-focused PR that are similar to dampening, future studies may find that both self-focused and emotion-focused PR led to more perceived stress and more explicit aggression for those with bipolar and depressive disorders. Another future study can address the weak a path of the emotion-focused PR mediational model to determine if strengthening this path leads to significant mediation.

The current study is not without limitations. First, the study cannot conclude causation, only correlations. Longitudinal models should be conducted to determine if the current study's findings are depicted over longer time durations. Second, the sample size consists of undergraduate students who are predominantly female and Caucasian. Future studies should replicate the data with a more diverse sample size.

The findings of the current study are novel and expand the PR literature. While the findings do not directly have clinical implications, self-focused PR does result in beneficial effects such as higher self-esteem, better well-being, and resiliency that should not be overlooked. Self-focused PR may have a similar effect as gratitude, but self-focused PR improves the relationship within one's self as opposed to relationships with others (Algoe, 2012; McNulty & Dugas, 2019). The findings of this study have revealed the negative effects of dampening. This suggests that individuals should avoid engaging in dampening, which is a similar outlook to NR. Many therapies such as MCT (Wells, 2009), RFCBT (Watkins, 2016), and MBCT (Segal, Williams, & Teasdale, 2013) have been developed to combat NR and its detrimental consequences. Dampening can be introduced within these therapies in addition to NR, which may prevent individuals from engage in dampening and experiences the harmful effects.

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